

mains of the snails that lived there, literally thousands of them. It takes a fire such as this to bring to one's attention the enormous abundance of snails at some localities. Many of the specimens are badly burned but there would be no difficulty in recognizing forms so distinct as *Ephragmophora fidelis* and *arrosa*. Of all the many thousands which I saw on August 28th, 1921 every one except three belonged to the latter species. The exceptions belonged to the *E. californiensis* complex, doubtless the same as Edson recorded as *E. nickliniana*. A small strip of ground around the northeast side was left unburned and this was also searched without success for *E. fidelis*.

E. arrosa here is exceptionally abundant. Some 200 specimens were picked up incidentally during the search. Considerable variation is noted in this large series. Some approximate the size and shape of *fidelis* and the umbilicus is occasionally almost closed as in that form. Moreover, numerous shells are very dark as compared with the usual *arrosa*. But in no case is the coloration and banding of *fidelis* approached, and the surface sculpture in all specimens is positively that of *arrosa*.

It must therefore be said that Gifford's record cannot be confirmed. If *E. fidelis* existed on San Mateo Point it was a very small and inconspicuous colony which has now apparently disappeared. It will be an interesting study in the distribution of mollusks to learn how long it will take the several species to repopulate the area from the small number of specimens left living.

Ariolimax californicus Cooper was found living on the Point. It should be added to the list given by Edson.

Museum, California Academy of Sciences.

SOME LAND SNAILS OF SHASTA COUNTY, CALIFORNIA.

BY S. STILLMAN BERRY.

During an automobile trip through northern California and Oregon in the summer of 1920, that industrious collector, Allyn G. Smith, managed to find time to stop by the way long enough to unearth a few snails. Of particular interest is a small series

of specimens taken as chance gave opportunity in Shasta County, still almost a virgin field for the Californian malacologist.

Along a stream band near the highway, about two miles south of Weed, occurred a number of species, the following list of which furnishes strange reading for California. The proportion of eastern, or, rather, boreal types is particularly noteworthy. A note is made of the number of specimens taken as furnishing some indication of the probable relative abundance of the species.

Euconulus fulvus (Müller) (*alaskensis* Pilsbry?), 8.

Zonitoides arborea (Say), 3.

Polita hammonis (Ström), 5.

Polita binneyana (Morse), 2.

Vitrina alaskana Dall, 1.

Polygyra sierrana n. sp., 31.

Gonyodiscus cronkhitei (Newcomb), 25.

Cochlicopa lubrica (Müller), 4.

Succinea avara Say, 9.

A description of the new *Polygyra* is appended below.

Polygyra sierrana new species (plate II, figs. 1-2).

Description: Shell small, conical, thin. Growth lines numerous and strong enough almost to resemble fine ribbing under a lens. Embryonic whorls at first almost smooth, then finely radially wrinkled, the periostracum soon showing a system of dot-like papillae, bearing minute periostracal hairs over most of the surface of the shell. Spire moderately low, slightly convex, with impressed sutures. Whorls about $5\frac{1}{2}$. Body whorl with a suggestion of an angle at the shoulder, and a deep, abrupt constriction just back of the peristome, the base moderately swollen; slightly decending in front. Lip light brown, thickened and reflected, but not very wide; narrowed below the pillar, then very slightly flaring again. Umbilicus small but distinct; contained about eleven to fourteen times in the diameter of the shell. Lip sometimes with a slight extra thickening at base, otherwise without evidence of teeth, although a small, whitish, narrowly crescentic parietal tooth is sometimes developed. Color close to Verona brown of Ridgway's nomenclature.

Dimensions:

	<i>Type.</i>	<i>Paratype.</i>	<i>Paratype.</i>
	mm.	mm.	mm.
Greater diameter	9.0	9.0	8.4
Lesser diameter	7.7	7.7	7.4
Height	5.7	5.8	5.2
Diameter of umbilicus	0.8	0.7	0.6
Number of whorls	5 $\frac{3}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{4}$

Type: Cat. No. 5087 of the writer's collection. Paratypes have been deposited in the collections of the California Academy of Sciences, and the Academy of Natural Sciences of Philadelphia, as well as the private collection of Allyn C. Smith (Cat. No. 2236).

Type Locality: Two miles north of Weed, Shasta County, California; Allyn G. Smith, August 10, 1920; 22 adult specimens, 9 juvenals.

Remarks: From the evidently nearly allied *loricata* the present species differs in its larger size and more simple tothing of the aperture. In some ways it more nearly resembles *germana*, but again is larger, has a much less tumid body whorl and differs strongly in being distinctly umbilicate. From *columbiana* it differs in its compactness and smaller size, but it is nevertheless not very unlike this species on a greatly reduced scale.

I have a small series of a similar but rather thinner-shelled and more depressed race of *Polygyra*, collected in the high Sierras of central California between Glenbrook and Al Tahoe, by Mr. E. P. Chace in 1919. The differences are not great, however, and they are apparently referable to the same species as the Shasta County form.

Near La Moine Mr. Smith collected a considerable series of a peculiar race of *Polygyra columbiana* (Lea) which seems sufficiently characteristic to be described. The ground was very dry and no other species were taken there, but the Polygyras were found almost in the water, under sticks and stones.

Polygyra columbiana shasta new subspecies (Plate II, figs, 3-4).

Description: Shell of moderate size, conic, thin; smooth, except for the numerous and fairly strong incremental lines,

which, however, become much weaker on the base; surface *polished and lustrous*, especially on the base. Embryonic whorls, where not eroded, at first rather rudely radially wrinkled, but, at least after the first half turn, *strongly, coarsely papillose*, as well. Spire low, almost straight sided except toward the summit; sutures well impressed. Whorls usually $5\frac{1}{4}$ to 6. Body whorl subangulate at the shoulder, but becoming more rounded as the aperture is approached; slightly decending and rather abruptly constricted just back of the peristome, the base moderately swollen and rounded. Lip whitish or stained a very light brown; thickened and reflexed but not very wide; obscurely angled and narrowed below the pillar, which is somewhat reflexed over the narrow but permeable umbilicus; lip often showing a slight extra thickening on the base, but aperture otherwise without denticles save for an occasional specimen showing the merest trace of a parietal tooth. Color of body whorl fairly near tawny olive, deepening to snuff brown or Saccardo's umber on the earlier whorls.

Measurements:

	<i>Type.</i>	<i>Paratype.</i>	<i>Paratype.</i>	<i>Paratype.</i>
	mm.	mm.	mm.	mm.
Greater diameter	14.0	13.5	13.3	12.7
Lesser diameter	12.0	11.4	11.3	10.6
Height	9.0	8.2	8.7	8.0
Diameter of umbilicus	1.0	1.1	1.0	0.8
Number of whorls	6	$5\frac{1}{2}$	$5\frac{3}{4}$	$5\frac{1}{4}$

Type: Cat. No. 5089 of the writer's collection. Paratypes have been deposited in the collections of the California Academy of Sciences, Academy of Natural Sciences of Philadelphia, and Leland Stanford Junior University, as well as the private collection of Allyn G. Smith.

Type Locality: La Moine, Shasta County, California; Allyn G. Smith, August 1921; 25 adult specimens.

Remarks: Although I have been gathering material of *Polygyra columbiana* for several years, with a view to possible monographic treatment of the species, I am still uncertain how far it will be wise to go in giving taxonomic recognition to the innumerable weakly differentiated races of this widespread snail.

The present form is, however, not like anything which has been seen by me heretofore. Its warm brown color, smooth, polished surface, lack of any sort of persistent periostracal fringes, and narrow, though permeable umbilicus, are features serving to set it quite distinctly apart.

EXPLANATION OF FIGURES.

Fig. 1, 2.—*Polygyra sierrana* n. sp. Type, from near Weed, Shasta County, California; x 3.

Fig. 3, 4.—*Polygyra columbiana shasta* n. subsp. Type from La Moine, Shasta County, California; x 2.

MISCELLANEOUS NOTES ON LAND MOLLUSCA OF THE MADEIRA IS.

BY T. D. A. COCKERELL.

Though Porto Santo is the home of so many endemic snails, there still seems to be room for aliens from Europe. *Cochlicella acuta* is abundant in certain spots north of Villa Baleira. *Helix pisana* swarms everywhere. In a spring in the valley of the Serra do Dentro I found specimens of a small Hydrobiid, which Dr. Pilsbry has kindly identified as *Pseudamnicola similis* (Drap.). This species was already known from Madeira, but is the first record of a freshwater shell from Porto Santo.

In 1848 (Proc. Zool. Soc. Lond., p. 110) Pfeiffer described some shells from the Cuming collection, including a species *Helix calcarea*, collected by Count Vargas in Porto Santo. This shell has since been ignored; Wollaston does not mention it. Pfeiffer subsequently listed it as a fossil. In the British Museum I found the type specimen. Mr. Tomlin, to whom I showed it, recognized Pfeiffer's writing on the label underneath the slab. It is a recent shell, and is a form of *Helix pisana*, white without bands. The name *calcarea* cannot be used even in a varietal sense, as there is an earlier *H. calcarea* Born.

Also in the British Museum, from the Cuming collection are five specimens of *Vitrea miguelina* (Pfeiffer), said to be

* Plate II will appear in next issue.